

Colloquium at Giant Magellan Telescope:

Building the James Webb Space Telescope

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The James Webb Space Telescope is the scientific successor to the Hubble and Spitzer Space Telescopes. It will be a large (6.6m) cold (50K) telescope launched into orbit around the second Earth-Sun Lagrange point. It is a partnership of NASA with the European and Canadian Space Agencies. JWST will make progress in almost every area of astronomy, from the first galaxies to form in the early universe to exoplanets and Solar System objects. Webb will have four instruments: The Near-Infrared Camera, the Near-Infrared multi-object Spectrograph, and the Near-Infrared Imager and Slitless Spectrograph will cover the wavelength range 0.6 to 5 microns, while the Mid-Infrared Instrument will do both imaging and spectroscopy from 5 to 28.5 microns. The observatory is confirmed for launch in 2018; the design is complete and it is in its construction phase. Innovations that make JWST possible include large-area low-noise infrared detectors, cryogenic ASICs, a MEMS micro-shutter array providing multi-object spectroscopy, a non-redundant mask for interferometric coronagraphy and diffraction-limited segmented beryllium mirrors with active wavefront sensing and control. Recent progress includes the completion of the mirrors, the delivery of the first flight instruments and the start of the integration and test phase.